EVERAGES

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RECORDED

Malting Proc

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N° 20,930 A.D. 1893

Date of Application, 4th Nov., 1893
Complete Specification Left, 4th Aug., 1894—Accepted, 15th Sept., 1894

PROVISIONAL SPECIFICATION.

A Method of Treating Grain and other Materials for Employment in Brewing and for other Useful Purposes.

I THOMAS BAYLEY of 2 Pearson Terrace Sandymount Avenue Ballsbridge Dublin Experimental Chemist do hereby declare the nature of this invention to be as follows :—

My invention consists in acting upon grain and other materials containing starchy tissues with a suitable acid more or less dilute whereby the starch is modified *in situ* and the whole or the greater part of it is converted into the soluble form so that when the material is afterwards treated with hot water or other aqueous solvent the modified starch dissolves and undue thickening of the mixture is avoided. The following method of treating rice is an example of the manner in which the process is applied. The rice is ground and mixed in the cold or at a temperature of 40° C. or any intermediate temperature with sulphuric acid diluted with 9 parts (more or less) by weight of water or hydrochloric or other suitable acid of proper strength may be employed and the mixture is allowed to stand for 21 days (or a longer or shorter period) after which the acid is removed by percolation or in some other way and the rice is afterwards washed with water until the washings give no acid reaction with test paper. A small quantity of sodium bicarbonate or other suitable alkali may be employed at the final stage of the washing this being in turned expelled by water. The rice is dried or used wet and when afterwards digested with hot water yields the whole or greater part of the starch forming a hot limpid liquid and the formation of a thick magma is avoided.

Dated this 3rd day of November 1893.

THOMAS BAYLEY.

COMPLETE SPECIFICATION.

A Method of Treating Grain and other Materials for Employment in Brewing and for other Useful Purposes.

I, THOMAS BAYLEY, of 2 Pearson Terrace, Sandymount Avenue Ballsbridge Dublin, Experimental Chemist do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

My invention consists in acting upon grain and other materials containing starchy tissues with a suitable acid more or less diluted whereby the starch is modified *in situ* and the whole or the greater part of it is converted into the soluble form so that when the grain or other material is afterwards treated with hot water or other solvent the modified starch dissolves, a comparatively limpid solution being formed and undue thickening or viscosity avoided.

The following method of treating rice is an example of the manner in which the process is applied. The rice is ground and mixed in the cold or at a temperature of 40° C. or any intermediate temperature with sulphuric acid diluted with 9 parts (more or less) by weight of water, or hydrochloric, sulphurous or other suitable acid of proper strength may be employed, and the mixture is allowed to stand for 21 days (or a longer or shorter period according to the nature of the acid employed) after which the acid is removed by percolation or in some other way and the rice

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is afterwards washed with water until the washings give no acid reaction with test paper. A small quantity of sodium carbonate or other alkali may be employed at the final stages of the washing this being in turn expelled by water. The rice is dried or used wet and when afterwards digested with water at 190° F. or some higher temperature yields the whole or greater part of the starch forming a hot limpid liquid and the formation of a thick magma is avoided. It is not necessary to grind the rice, the grains may be immersed in the acid and the conversion of the starch and the subsequent washing and treatment with hot water carried out as previously described, practically the whole of the starch being extracted. If the treatment with acid be carried out at about 100° F. about 48 hours are sufficient for the modification of the starch. The time required when a saturated solution of sulphurous acid is employed at a temperature of 100° F. is seven or eight days. For the treatment of maize the grain is roughly crushed, and sulphuric acid of 12½ *per cent.* strength is used, the action is completed in about four or five days at 100° F.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is :—

The treatment substantially in the manner herein described of grain or other material containing starchy tissue with dilute sulphuric or other suitable acid whereby the starch is modified *in situ* that is without previous separation and the whole or the greater part of it is converted into soluble starch so that when the grain &c. is afterwards treated with hot water or other solvent the modified starch dissolves and a thin liquid is obtained and I claim the employment of such "soluble rice," "soluble maize" or other material prepared by my process for brewing and for other useful purposes.

Dated this 2nd day of August 1894.

THOMAS BAYLEY.

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